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Kharjuri Bheda of Bhavaprakasha Nighantu: A Review on the Tree of Life

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ABSTRACT

Fruits are the most requisite component of a healthy diet. They are the natural and prime sources of vitamins and carbohydrates. Fruits are also extensively used by the traditional medical practitioners for curing various diseases in their day-to-day practice. It is important to have the knowledge of proper sources of fruits which are currently and most commonly available. *Kharjuri* is one such utilitarian traditional medicinal plant in India, for which four varieties have been mentioned in *Bhavaprakasha Nighantu*. Understanding its current sources based on the actions mentioned in the classics is necessary to include it in the practice. Currently there are around seven varieties of *Kharjura* available, but only four varieties have been mentioned along with their actions and properties in *Bhavaprakasha Nighantu* – *Bhumi Kharjuri* or *Kshudra Kharjuri*, *Pinda Kharjuri*, *Chohara Kharjuri*, *Sulemani Kharjuri*. Present review aids to understand the actions of different varieties of *Kharjura* along with its ethnobotanical practices with a view to imbibe it in the clinical practice

Key Words *Kharjura, Kharjuri, Ethnobotanical practice*

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INTRODUCTION

Kharjura is one of the important fruits which is grown in desert lands of India mainly, which is used as both food and medicine. Due to its abundant health benefits, it is considered as one of the “Tree of Life”¹. It is one of the fruits which is given in India during post-partum period. It is a rich source of vitamin B. Commonly cultivated in North-Western districts of India & wildy available in the Mediterranean region as these places meets the ideal mean temperature of 25⁰ to 39⁰ during flowering and fruit ripening seasons. It is

usually cultivated for its edible sweet fruit *Kharjura*². It is a medium sized plant, 15-25 m tall, growing singly or forming a clump with several stems from a single root system. The leaves are around 4-6 cm long, with spines on the petiole, pinnate, with about 150 leaflets, around 30 cm long and 2 cm wide. Fruits are oval, cylindrical, around 3-7 cm long and 2-7 cm diameter. When ripe, it ranges from bright red to bright yellow in colour. Dates contain single seed about 2-2.5cm long and 6-8mm thick. Date palm is dioecious, having separate male and female plants. They can be easily grown from seed, but only 50%

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of seedling will be female and hence fruit bearing, and Dates from seedling plants are often smaller and of poorer quality. Most commercial plantations thus use cuttings of heavily cropping cultivars. Plants grown from cuttings will fruit 2–3 years earlier than seedling plants³.

MATERIALS AND METHODS

An effort was made to collect the literary views of *Kharjuri* which may lead to clear understanding. An overview of the description of *Kharjuri* pertaining to Nirukti, scientific classification, vernacular names, synonyms, varieties, parts used, *Rasapanchaka*, morphology, habitat, phytochemicals, pharmacological actions, ethnobotanical practices and current market sources are mentioned as follows.

Nirukti⁴ –

खर्जति व्यथयति रोगान्, खर्ज व्यथने | (*Kharjati Vyathayati Rogan, Kharja Vyathane*)

That which alleviates or treats pain & other diseases

Scientific classification⁵ –

The scientific classification of both the sources *Phoenix dactylifera* Linn. and *Phoenix sylvestris* Roxb. are as shown in Table 1.

Table 1 Scientific classification of *Phoenix dactylifera* Linn. and *Phoenix sylvestris* Roxb.

<i>Phoenix dactylifera</i> Linn.	<i>Phoenix sylvestris</i> Roxb.
Kingdom – Plantae	Kingdom – Plantae
Phylum – Tracheophyta	Phylum – Tracheophyta
Class – Liliopsida	Class – Liliopsida
Order – Arecales	Order – Arecales
Family – Arecaceae	Family – Arecaceae

Genus – <i>Phoenix</i>	Genus – <i>Phoenix</i>
Species – <i>dactylifera</i>	Species – <i>sylvestris</i>

Vernacular names⁵ –

Kannada – *Eechalu, Kharjura*

Hindi – *Khajur, Sendhi*

Malayalam – *Kaattintha*

Tamil – *Inthupaanai*

Telugu – *Ita*

Marathi – *Khareek*

English – Date palm, Date sugar palm, Wild date palm

Classical references⁶ –

- *Vrindamadhava* – *Kharjuradi Leha* for *Pittaja Kasa*; *Kharjuradi Kashaya* for *Adhoga Raktapitta*
- *Caraka Samhita* – *Kharjuradi leha* for *Chardi*; *Kharjuradi Ghrta* for *Kasa, Shwasa & Jwara*; *Kharjuradi Mantha* for *Grahani Roga*
- *Susruta Samhita* – *Kharjura + Draksha kalka* for *Aruchi*; *Kharjura Phala + Madhu* for *Hikka*

Varieties⁴ –

There are four varieties of *Kharjuri* explained in the classics. Source of them have been correlated as shown below.

- *Bhoomi Kharjuri* (*Kshudra Kharjuri*): *Phoenix sylvestris* Roxb. – Arecaceae
- *Pinda Kharjuri & Chohara Kharjuri*: *Phoenix dactylifera* Linn. – Arecaceae
- *Sulemani Kharjuri*: *Bheda* of *Pinda Kharjuri* (source – unknown)

Synonyms⁴ –

Different synonyms which have been mentioned in the classics for different varieties

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of *Kharjuri* and the basis on which the synonym is given are tabulated in Table 2.

Table 2 Synonyms for different varieties of *Kharjuri* along with *Namarupa* relation for each

Synonym	Variety	<i>Namarupa</i> relation
<i>Swadvi</i>	<i>Bhoomi Kharjuri</i>	<i>Svabhava</i>
<i>Duraroha</i>	<i>Bhoomi Kharjuri</i>	<i>Lanchana</i>
<i>Mrducchada</i>	<i>Bhoomi Kharjuri</i>	<i>Lanchana</i>
<i>Skandhaphala</i>	<i>Bhoomi Kharjuri</i>	<i>Lanchana</i>
<i>Kakakarkati</i>	<i>Bhoomi Kharjuri</i>	<i>Lanchana</i>
<i>Swadumastaka</i>	<i>Bhoomi Kharjuri</i>	<i>Svabhava</i>
<i>Swalpakharijrika</i>	<i>Bhoomi Kharjuri</i>	<i>Svabhava</i>

Table 4 *Rasapanchaka* of all the four varieties of *Kharjuri*

Variety	<i>Rasa</i>	<i>Guna</i>	<i>Veerya</i>	<i>Vipaka</i>	<i>Dosha karma</i>
<i>Bhoomi Kharjuri</i>	<i>Madhura</i>	<i>Snigdha, Guru</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Vata-Kapha Shamaka</i>
<i>Pinda Kharjuri / Chohara Kharjuri</i>	<i>Madhura</i>	<i>Snigdha, Guru</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Vata-Kapha Shamaka</i>
<i>Sulemani Kharjuri</i>	<i>Madhura</i>	<i>Snigdha, Guru</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Pitta Shamaka</i>

Karma & Rogagnata of each variety⁴ –

Table 5 *Karma & Rogagnata* of different varieties of *Kharjuri*

Variety	<i>Karma</i>	<i>Rogagnata</i>
<i>Bhoomi Kharjuri</i>	<i>Ruchikara, Hrdya, Tarpana, Pushtikara, Shukrala, Balya</i>	<i>Kshatakshaya, Raktapitta, Chardi, Jwara, Atisara, Kshut, Trshna, Kasa, Shwasa, Mada, Murecha</i>
<i>Pinda Kharjuri / Chohara Kharjuri</i>	<i>Ruchikara, Hrdya, Tarpana, Pushtikara, Shukrala, Balya</i>	<i>Kshatakshaya, Raktapitta, Chardi, Jwara, Atisara, Kshut, Trshna, Kasa, Shwasa, Mada, Murecha</i>
<i>Sulemani Kharjuri</i>	<i>Tarpana, Dahaghna, Shramahara</i>	<i>Daha, Shrama, Bhranti, Murecha, Raktapitta</i>

Difference in morphology of two different source plants⁷ –

Phoenix sylvestris Roxb. is a strict solitary palm, distinguished by its dense spherical crown composed of relatively short leaves with small leaf bases forming a characteristic dense and regular pattern of small diamond-shaped leaf scars on the trunk of old specimens. Leaf segments are greyish, not very rigid and

<i>Mrdula</i>	<i>Sulemani Kharjuri</i>	<i>Lanchana</i>
<i>Dalaheenaphala</i>	<i>Sulemani Kharjuri</i>	<i>Lanchana</i>

Parts used of each variety⁴ –

Part of the plants used of different varieties of *Kharjuri* are shown in Table 3

Table 3 Parts used of different varieties of *Kharjuri*

Variety	Parts used
<i>Bhoomi Kharjuri</i>	<i>Phala, Moola</i>
<i>Pinda Kharjuri / Chohara Kharjuri</i>	<i>Phala, Niriyasa</i>
<i>Sulemani Kharjuri</i>	<i>Phala</i>

Rasapanchaka of each variety⁴ –

Rasapanchaka of all the four varieties of *Kharjuri* are shown in Table 4

Rogagnata of different varieties of *Kharjuri* are as shown in Table 5

sometimes twisted. *Phoenix dactylifera* Linn. is considerably less homogeneous morphologically than *Phoenix sylvestris* Roxb. It is usually clustering. The crown of *Phoenix dactylifera* Linn. is variously sized and shaped (spherical to hemispherical, dense to open, small to large), but the leaf bases always enlarge considerably producing a pattern of large leaf scars on the trunk. Leaf segments are

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variously coloured, from dark green to bluish, and vary from thin and soft to thick and rigid. In both the species, leaf segments are clustered and disposed on various planes. The fruits of *Phoenix sylvestris* Roxb. are smaller and arranged in clusters as shown in Figure 1 than those of the *Phoenix dactylifera* Linn. as shown in Figure 2.



Figure 1 Fruits of *Phoenix sylvestris* Roxb.



Figure 2 Fruits of *Phoenix dactylifera* Linn.

Habitat of two source plants of Kharjuri⁷ –

Though both the sources are found in India, there are differences in their availability in wild form. *Phoenix sylvestris* Roxb. is commonly available in wild form and is rarely cultivated. But, *Phoenix dactylifera* Linn. is the cultivated variety. The habitat of both the sources are tabulated in Table 6.

Table 6 Habitat of two source plants – *Phoenix sylvestris* Roxb. and *Phoenix dactylifera* Linn.

Source	Habitat
<i>Phoenix sylvestris</i> Roxb.	Distributed in South Asia across India, Bhutan and Bangladesh. But tolerably common throughout India Commonly found on low ground in the sub-Himalayan tract
<i>Phoenix dactylifera</i> Linn.	Cultivated in Eastern and South-Eastern parts of India – West Benagl and Andhra Pradesh Date palm is presently cultivated mostly in the Indus Valley regions Also found in the fertile coastal belt of Kutch, the Westernmost part of Gujarat bordering with Pakistan

Phytochemical properties of two varieties of Kharjuri^{8,9} –

Phytochemicals present in both the sources are as shown in Table 7

Table 7 Phytochemicals present in *Phoenix sylvestris* Roxb. and *Phoenix dactylifera* Linn.

Source	Phytochemicals present
<i>Phoenix sylvestris</i> Roxb.	The fruits of <i>Phoenix sylvestris</i> Roxb. contain tannins , sugars, mucilage, vitamins A , B and D, ascorbic acid, and free amino acids—mainly alanine , with carbohydrate (33.8%), minerals (1.7%), protein (1.2%), enzymes (3.7%), phosphorus (0.38%), calcium (0.002%) and fatty acid (0.4%)
<i>Phoenix dactylifera</i> Linn.	The fruits of <i>Phoenix dactylifera</i> Linn. Contain phenols, flavonoid glycosides, flavones – Epicatechin and Catechin, pigments, steroids, enzymes, vitamins A, B (1,2,3,5,6,9) and C

Pharmacological actions of two varieties of Kharjuri^{9,10} –

Pharmacological actions of the two source plants of *Kharjuri* are tabulated in Table 8.

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Table 8 Pharmacological activities of two source plants of *Kharjuri*

Source	Pharmacological activities
<i>Phoenix sylvestris</i> Roxb.	Anti-microbial activity
	Anti-diarrheal activity
	Anti-diabetic activity
	Anti-inflammatory
	Anti-oxidant activity
	Anti-obesity activity
	Anti-cancer activity
	Diuretic activity
	Hepatoprotective activity
	Effect on reproductive system
<i>Phoenix dactylifera</i> Linn.	Anti-bacterial activity
	Hepatoprotective activity
	Anti-ulcer activity
	Nephroprotective activity
	Sedative activity

Table 9 Ethnobotanical practices of *Phoenix sylvestris* Roxb. and *Phoenix dactylifera* Linn.

Source	Ethnobotanical uses
<i>Phoenix sylvestris</i> Roxb.	Dhar region – Heart wood – To increase lactation
	Jhansi – Fruit – Asthma, cough, fever, tuberculosis
	Eastern Ghats & Tamil Nadu – Root – Toothache
	Angul Forest Division, Mandaragiri – Fruit – Cardiogenic, general debility
	Bangladesh – Fruit juice – Gonorrhoea
	Bhadrawati – Fruit – Headache, arthritis
	Nepal – Sap – Diarrhoea
	Western Ghats – Fruit – Male infertility
<i>Phoenix dactylifera</i> Linn.	In piles, smoke of Dates seed is used to get relief from the pain ⁹
	Tribals of Chindwara district of Madhya Pradesh – Leaf juice – Dysentery ²
	Uttar Pradesh – Decoction of stem bark – Pyorrhoea ²
	Middle East – Flower – Purgative ⁹

Ethnobotanical practices of two varieties of *Kharjuri*⁸ –

Both the sources are being utilized in different regions for the treatment of many diseases, which are not mentioned in the classics. Few of these folklore practices are tabulated in Table 9.

Some of the common market varieties of dates available –



Figure 3 Khadrawi dates



Figure 4 Amber dates



Figure 5 Yellow Barhi dates

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a. ***Khadrawi*** (Figure 3) –

It is a small-medium sized variety with a stout oval shape and thick golden-red flesh that surrounds a seed. It is rich in folic acid, iron, potassium and protein¹¹.

b. ***Amber*** (Figure 4) –

It is a fleshy and soft fruit with a dry texture and dark brownish colour. It is rich in vitamins A and K, calcium, phosphorus, sodium, magnesium and zinc¹².

c. ***Yellow Barhi*** (Figure 5) –

It is smaller and spherical than the other varieties, having yellowish colour. The flesh has crunchy apple-like texture with slight sweetness and mild astringency. It is a rich source of vitamin B, fiber, flavonoids and anti-oxidants¹³.



Figure 6 *Kustawi* dates



Figure 7 *Zahidi* dates



Figure 8 *Medjool* dates

d. ***Kustawi*** (Figure 6) –

It is a small-medium sized variety, having oval-oblong shape with a broad center, blunt and curved ends. The skin ranges from smooth and glossy to creased and folded. It is rich in potassium, magnesium, copper, vitamins B6 and C¹⁴.

e. ***Zahidi*** (Figure 7) –

It is a medium sized date with distinctively oval shape. They have pale brown skin and a thick golden inner flesh. They are rich in iron, flavonoids, amino acids and anti-oxidants¹⁵.

f. ***Medjool*** (Figure 8) –

It is a larger variety having comparatively darker coloured skin. It is rich in calcium, copper, magnesium and potassium¹⁶.



Figure 9 *Deglet Nour* dates



Figure 10 *Barhi* dates

g. ***Deglet Nour*** (Figure 9) –

It is an oblong-elongated fruit with a translucent brown colour. It is rich in copper, vitamins B3, B5, B6 and B9, manganese and potassium¹⁷.

h. ***Barhi*** (Figure 10) –

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It is a smaller variety having round-oval shape with dark brown colour. It is rich in potassium, magnesium, manganese, iron and vitamin C¹⁸.

DISCUSSION

The fruit of *Kharjuri* plant is called as *Kharjura*. *Kharjuri* which is explained in *Amradiphalavarga* of *Bhavaprakasha Nighantu* has four varieties according to the literature. Among the four varieties, *Bhoomi Kharjuri* is considered as *Phoenix sylvestris* Roxb. *Pinda Kharjuri* is considered as *Phoenix dactylifera* Linn. native to Western part of India. Whereas, *Chohara* variety of *Kharjuri* is considered as *Phoenix dactylifera* Linn. native to other Western countries, as quoted “*Saa Desha Paschima Bhaga*” and “*Paschima Desha*” for *Pinda Kharjuri* and *Chohara Kharjuri* respectively in the classics. The source of *Sulemani* variety of *Kharjuri* is yet unknown, but it is a *Bheda* of *Pinda Kharjuri* according to the classics. Various types of Dates which are available at present in the market, are of the cultivated source of *Phoenix dactylifera* Linn. They have got different names mainly based on the regions cultivated, stages of fruits at which they are harvested and also on the sweetness, different shapes and sizes of the fruits. According to the phytochemicals present and the nutritive values, *Phoenix dactylifera* Linn. is one of the important sources for vitamin B, specifically the Yellow Barhi variety of dates.

In Middle-East, it is considered as one of the “Tree of Life”’s due to its health benefits.

CONCLUSION

This review mainly aims at explaining four different varieties of *Kharjuri* mentioned in *Bhavaprakasha Nighantu*, with their botanical sources, *Paryaya*, *Rasapanchaka*, *Rogaghnata*, morphological differences, habitats, phytoconstituents, pharmacological activities, ethnobotanical practices and a gist on the nutritive values of different market varieties of dates available. Mainly all the varieties have *Madhura Rasa*, *Guru & Snigdha Guna*, *Sheeta Veerya* and *Madhura Vipaka*. *Sulemani Kharjuri* is *Pitta Shamaka* and other varieties are *Vata-Kapha Shamaka*. This can be considered as the *Dravya Prabhava*. And all the varieties have *Karma* like *Ruchikara*, *Tarpana*, *Balya*, *Hrdya*, *Shukrala*. Standardization and adoption of the folklore practices in day-to-day practice is the need of the hour. Hence, it is important to have the proper knowledge of the drugs mentioned in the classics and their correlation to the botanical sources.

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